

Patent Claims

1. A multilayer decoupling, sealing and drainage system (1) in particular for laying ceramic paving (10) by using a thin-bed method (12), said system comprising a layered construction containing, from the base upwards,
 - a drainage layer (3) that is formed from a lattice-type structural element and comprising drainage areas (13) that are formed between the lattice structures of the lattice-type structural element,
 - a liquid-permeable and non-woven layer (6),
 - an anchoring layer (2) that is configured from a second lattice-type structural element and used to hold a filler material (12) that is to be incorporated into the upper face of the sealing and drainage system (1), which is plastic during processing and subsequently cures,
 - a reinforcing layer (5) which is fixed, at least in some sections, to the anchoring layer (2).
2. Decoupling, sealing, and drainage system (1) as defined in Claim 1, characterized in that the first lattice-type structural element (3) and the second lattice-type structural element (3), are of identical structure.
3. Decoupling, sealing, and drainage system (1) as defined in one of the Claims 1 or 2, characterized in that the lattice-type structural element (2, 3) is

formed from individual rods (7, 8) that are disposed to one another in the manner of a lattice and fixed to one another at the points of intersection (9) of the lattice.

4. Decoupling, sealing, and drainage system (1) as defined in Claim 3, characterized in that the individual rods (7, 8) of the lattice-type structural element (2, 3) are of an essentially rectangular cross section.
5. Decoupling, sealing, and drainage system (1) as defined in one of the Claims 3 or 4, characterized in that the intersecting individual rods (7, 8) of the lattice-type structural element (2, 3), are so arranged that a first layer consists of identically oriented individual rods (7) beneath a second layer of individual rods (8) that are disposed at an angle thereto and are in each instance oriented identically to one another.
6. Decoupling, sealing, and drainage system (1) as defined in one of the preceding claims, characterized in that the lattice-type structure of the individual rods (7, 8) is in the form of a rhombus, a rectangle, or a square.
7. Decoupling, sealing, and drainage system (1) as defined in one of the preceding claims, characterized in that the individual rods (7, 8) of the two layers are welded to one another at the points of intersection (9) when under mechanical pressure.

8. Decoupling, sealing, and drainage system (1) as defined in one of the preceding claims, characterized in that the individual rods (7, 8) of the lattice-type structural element (2, 3) have slanted edge areas, at least at their points of intersection (9), thereby forming undercut sections on the individual rods (7, 8).
9. Decoupling, sealing, and drainage system (1) as defined in one of the preceding claims, characterized in that free, channel-like areas (13) for removing liquid that penetrates the sealing and drainage system (1) are formed between the first and second layer of individual rods (7, 8).
10. Decoupling, sealing, and drainage system (1) as defined in Claim 9, characterized in that because of the arrangement of the lattice-type structures, when the sealing and drainage system (1) has been laid, the channel areas (13) are so arranged that fluid that has penetrated the sealing and drainage system (1) drains off independently, preferably because of a gradient.
11. Decoupling, sealing, and drainage system (1) as defined in one of the preceding claims, characterized in that the reinforcing layer (5) is welded onto the anchoring layer (2).
12. Decoupling, sealing, and drainage system (1) as defined in one of the Claims 1 to 10, characterized in

that the reinforcing layer (5) is cemented onto the anchoring layer (2).

13. Decoupling, sealing, and drainage system (1) as defined in one of the preceding claims, characterized in that the reinforcing layer (5) is in the form of a lattice-type textile, preferably a glass-fibre textile, to provide for secure anchoring with the filler material (12) that is to be incorporated on top of the sealing and drainage system (1).
14. Decoupling, sealing, and drainage system (1) as defined in one of the preceding claims, characterized in that the reinforcing layer (5) extends beyond the other layers (2, 3, 6) at least in individual edge areas (14) of the sealing and drainage system (1) so as to create a transition to other sections of the sealing and drainage system (1).
15. Decoupling, sealing, and drainage system (1) as defined in one of the preceding claims, characterized in that the sealing and drainage system (1) can be laid so as to float on a substratum (15).
16. Decoupling, sealing, and drainage system (1) as defined in one of the Claims 1 to 14, characterized in that the sealing and drainage system (1) is laid rigidly, preferably cemented, on a substratum (15).
17. Decoupling, sealing, and drainage system (1) as defined in one of the preceding claims, characterized in that below the drainage layer (3) there is a

sealing layer (4) arranged on the drainage layer (3),
said sealing layer (4) being impermeable to liquid.

18. Decoupling, sealing, and drainage system (1) as defined in Claim 17, characterized in that the sealing layer (4) can be attached so as to self-adhere to adjacent sealing layers (4) of other sections of the sealing and drainage system (1).
19. Decoupling, sealing, and drainage system (1) as defined in one of the Claim 17 or 18, characterized in that the self-adhering sealing layer (4) is a bitumen-cold self- adhering strip.
20. Decoupling, sealing, and drainage system (1) as defined in one of the Claims 17 or 18, characterized in that the sealing layer (4) is formed from a polymer sealing layer, in particular from a polyethylene sealing layer.
21. Decoupling, sealing, and drainage system (1) as defined in Claim 20, characterized in that the sealing layer (4) of a polymer sealing layer extends beyond the other layers (2, 3, 5, 6) of the sealing and drainage system (1), at least in individual edge areas (14') so as to create a transition area that is impermeable to liquids to other sections of the sealing and drainage system (1).
22. Decoupling, sealing, and drainage system (1) as defined in one of the preceding claims, characterized

- in that the thickness of the drainage layer (3) is between 2 and 6 mm.
23. Decoupling, sealing, and drainage system (1) as defined in one of the preceding claims, characterized in that the thickness of the anchoring layer (2) is between 2 and 6 mm.
24. Decoupling, sealing, and drainage system (1) as defined in one of the preceding claims, characterized in that the overall thickness of the sealing and drainage system (1) is between 4 and 12 mm.
25. Decoupling, sealing, and drainage system (1) as defined in one of the preceding claims, characterized in that the liquid permeable non-woven layer (6) exhibits very low resistance to the passage of liquid.
26. Decoupling, sealing, and drainage system (1) as defined in one of the preceding claims, characterized in that the liquid-permeable non-woven layer (6) prevents the filler material (12), which is incorporated into the anchoring layer (2) when plastic, from penetrating into the drainage layer (3).
27. Decoupling, sealing, and drainage system (1) as defined in one of the preceding claims, characterized in that after the incorporation of the filler material (12), the anchoring layer (2) is essentially completely filled with the filler material (12) and the reinforcing layer (5) that is imbedded in the hardened filler material (12) performs a stiffening

and reinforcing function with respect to mechanical loads applied from above.

28. Decoupling, sealing, and drainage system (1) as defined in one of the preceding claims, characterized in that a barrier layer, in particular a barrier layer for providing soundproofing and in particular for attenuating impact noise, is arranged beneath the drainage layer (3).
29. Decoupling, sealing, and drainage system (1) as defined in one of the preceding claims, characterized in that the barrier layer is formed by a polymer layer, in particular by a polyethylene layer, or is formed by a bitumen layer.

Affidavit

I, Collett Calverley, a professional translator resident in Douglas, Ontario, Canada, do hereby state that I am familiar with the German and the English languages and that to the best of my knowledge and belief the document appended hereto is a true and complete translation of the German-language document titled **Mehrschichtiges Entkopplungs-, Abdichtungs- und Drainagesystem** (Multi-layer Decoupling, Sealing and Drainage System) than is further identified as WO 2005/045152, PCT/DE2004/002457.

Douglas, Ontario
2006.04.20

Signed: Collett Calverley